Communications of the Association for Information Systems

Volume 22 Article 27

4-2008

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Henri Isaac
Université Paris-Dauphine, France

Michel Kalika
Ecole de Management de Strasbourg, France

Nabila B. Charki
ESDES Busines school (GEMO),Catholic University of Lyon, France

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Michel Kalika

Ecole de Management de Strasbourg, Université Robert Schuman, F-67085, France

Université Paris-Dauphine, DRM, F-75016, France; CNRS, UMR7088, F-75016, France.

michel.kalika@em-strasbourg.eu

Nabila Boukef Charki

ESDES Busines school (GEMO),Catholic university of Lyon, France

Université Paris-Dauphine, DRM, F-75016, France ; CNRS, UMR7088, F-75016, France

Henri Isaac

Université Paris-Dauphine, DRM, F-75016, France.

CNRS, UMR7088, F-75016, France.

Abstract:

As the range of ICT applications in business organizations grows ever larger and takes up an increasing amount of time, the question arises as to whether this could have an impact on meetings. This paper explores the extent to which the use of ICTs replaces face-to-face interactions.

The data was gathered by telephone interviews from a sample population of 2,500 company managers questioned over a five-year period between 2001 and 2005.

The results indicate that substitution of face-to-face interactions by e-mail only occurs in a few organizations (< 15 percent of cases), while a quarter of the sample population felt that ICT use had led to an improvement in meetings. This appears to confirm the superposition effect of different media or the so-called "Napoleon effect."[1]

Keywords: ICTs, e-mail, managers, meetings, substitution, Napoleon effect

Volume 22, Article 27, pp. 501-514, April 2008

I. INTRODUCTION

Managers spend a large proportion of their time in meetings. At the same time, various forms of electronic communication (e-mail, collaborative work tools, videoconferences, etc.) have been adopted by the majority of business organizations [Webster 1998; Kalika 2006; Wasson 2004]. Managers have indeed a range of communication tools at their disposal (fixed phone, mobile phone, fax, face-to-face, e-mail, SMS, etc.).In a context of hyper-competition [D'Aveni 1995] and the ever-growing demand for effective performance, time management has become a key issue for managers. The development of electronic means of communication, especially e-mail, is a major element in their daily routine, and it is not unusual for managers to spend several hours a day sending and replying to e-mails [McKeen and Smith 2004; Boukef 2005]. This raises the question as to how the growing use of e-mail impacts on other means of communication and coordination, particularly face-to-face. The present study looks at the extent to which electronic communication, limited in our study to e-mail, replaces face-to-face meetings. This issue is particularly pertinent in the French context where legal working hours are restricted. While we might assume that firms assimilate this new form of communication into the way they operate, consequently altering their modes of coordination and reducing the number of meetings in favour of the growing use of e-mail, the results obtained from a sample of 2,500 firms questioned over a five-year period (2001-2005) indicate that there is little evidence of replacement or substitution. Instead, we observe a stacking effect of the different media forms, which we call the "Napoleon effect."

II. LITERATURE REVIEW

The growing use of e-mail has led to numerous studies focusing on the choice and use of this media. The information richness theory [Daft and Lengel 1984; 1986] is the main theoretical construct used to explain the choice of media. Media are ranked according to the richness of the information transmitted, based on four characteristics [Daft et al. 1987]:

1. The capacity to transmit rapid and immediate feedback; this capacity allows rapid convergence to a joint interpretation or understanding [Trevino et al. 1990]
2. The capacity of the message to transmit multiple cues such as tone of voice, facilitating the interpretation of the message
3. The capacity to establish personal contact
4. The capacity to transmit rich and varied language

Based on these criteria, face-to-face is considered as the richest communication medium, followed by the telephone and e-mail. The information richness theory considers e-mail to be a weak medium due to its inability to supply immediate feedback, its tendency to filter important cues and its impersonal communication style, and the lack of variety in the language used.

The ability to choose the appropriate medium for a given situation is considered as a characteristic of high-performing managers [Daft et al. 1987]. In effect, Lengel and Daft [1988] consider this to be a managerial competence that reflects sensitivity in the choice of media used.

Initially developed for traditional means of communication (face-to-face, phone, fax, memo, etc.), the application of information richness theory to ICTs, particularly e-mail, has led to conflicting results [Culnan and Markus 1987; Markus 1994]. One reason for this is that the specific characteristics of e-mail are not taken into account in the overall ranking of different means of communication, notably its capacity to communicate in an asynchronous manner, detached from spatial and temporal constraints. Van den Hooff et al. [2005] suggest that the media's capacity to free itself from these constraints may be a more important factor than its richness. Explanations concerning the choice of media cannot be reduced to the ambiguous character of the task and media richness alone [D'ambra et al. 1998]. To compensate for the weakness due to the omission of these spatial and temporal constraints [Suh 1999], information richness theory was later extended to include them, notably through the symbolic interactionist perspective [Trevino et al. 1987; 1990] and the channel expansion theory [Carlson and Zmud 1999]. Both these theories include situational factors to explain the choice of media, in other words factors linked to the context and symbolic aspects of the use of media [Trevino et al. 1990], as well as experience [Carlson and Zmud 1999]. However, these factors do not explain why two groups with the same background context use media in

different ways [Zack and McKenney 1995]. It is therefore important to include factors linked to social influence and the evolving properties of the media when analysing the choice of different means of communication, as media choice is linked to communication habits and norms [Fulk 1993; Watson-Manheim and Bélanger 2007]. Markus [1994] points out that social definitions relative to e-mail use may differ from those identified in the information richness theory. Individuals conform to social norms to determine appropriate behaviour, and this reduces personal choice. Zack [1993; 1994] highlights the role of tacit rules as well as the existence of shared expectations with respect to the media used. In addition to its objective and intrinsic characteristics, e-mail also has emergent and constructed properties [Lea et al. 1995]. Information richness theory and its extensions are based on the rationality of individual choices and therefore exclude factors related to context of use or the ability of individuals to negotiate their use of media [Lamb and Kling 2003]. The choice of media is effectively based on a number of elements which cannot be limited to contingent factors alone (information richness theory). It is therefore essential to take into consideration a range of factors involved in e-mail use, encompassing contingent factors, situational factors and factors linked to social influence and the evolving properties of the media. This perspective underlies the approach that we have adopted to analyse the use of e-mail in relation to meetings.

Furthermore, given the ever-growing number of media forms available in business organizations, users are not confronted with the exclusive choice of one form of media over another, but rather with the management of a whole set of communication tools [Massey and Montoya-Weiss 2006; Watson-Manheim and Bélanger 2007; Kalika 2007].

In this paper we refer to the Napoleon effect perspective [Kalika 2006; Kalika et al. 2007]. This theory takes into account the management of a whole portfolio of media forms rather than the simple choice of one form of medium over another. The Napoleon effect perspective considers that media use is dependent on a range of factors. In particular, it looks at the impact of substitution between the different means of communication and the way the various media forms are “stacked” or “layered. ” The Napoleon effect perspective is based on empirical observations of the failure to substitute face-to-face meetings by electronic communication in most firms. In effect, electronic communication arrived as an addition to the media already available, without necessarily calling into question their interest. This led to a layering effect of the different media forms whereby the users manage a set of media in which the various forms coexist.

In this paper, we analyse the substitution impact in a portfolio that includes e-mail and meetings. We try to explain the Napoleon effect that results from the superposition of these two media.

III. RESEARCH MODEL, HYPOTHESES AND METHODOLOGY

Over the years, e-mail has become an indispensable communication tool for organizations [Rice and Gattiker 2001] and its impact has been considerable [Karahanna and Limayem 2000]. Indeed, whether it is used as an “automatism” [De Vaujany 2001] or through “habit” [Ducheneaut and Bellotti 2001], a huge amount of work is carried out via e-mail in today’s business organizations [Markus 1994; Cucchi 2004; Weber 2004]. Studies on the nature of e-mail use have identified enrichment and diversification in its use [Ducheneaut and Bellotti 2001, 2003; Boukef Charki 2006]. In a longitudinal study, Van den Hooff [2005] identified changes in e-mail use, which is effectively employed more frequently and for a wider range of activities. Nevertheless, in spite of the increased frequency and the extended use of e-mail, its impact on reducing meetings is open to question. The usefulness of ICT tools to prepare and organise meetings is more apparent.

Research Model

The present study explores the following research questions: Does the increasing use of ICTs change the way meetings are run? Can we see any evidence that face-to-face forms of communication are replaced by distance information and coordination tools?

A meeting is understood here as a physical get-together, in other words several people meeting face to face to deal with professional issues as a group. We have not included virtual meetings in the present study.

Our hypothesis is that the growing use of ICTs influences the way that meetings are run.

ICT use was measured through two variables that were available to us in the present study: the use of the shared diary and the use of e-mail to arrange meetings. We do not expect these variables to measure all the uses of ICTs, but they are considered as indicators of electronic communication. They are also of interest as they are directly related to the phenomenon under study, namely the meetings.

The substitution impact is measured through the “frequency of the meetings” variable. How the meetings operate is analysed via variables concerning the preparation, duration, and effectiveness of the meetings.

However, the presumed relationship between ICTs and meetings cannot be considered outside the context of the company. In our case, this included two aspects; on the one hand, the more demographic aspect identifies the company in terms of sector, size, and nationality of origin, while the other more strategic aspect looks at the attitude of the firm's general management team with regard to ICTs, the supposed importance of ICTs in terms of competitive advantage, and the organizational changes induced by ICTs.

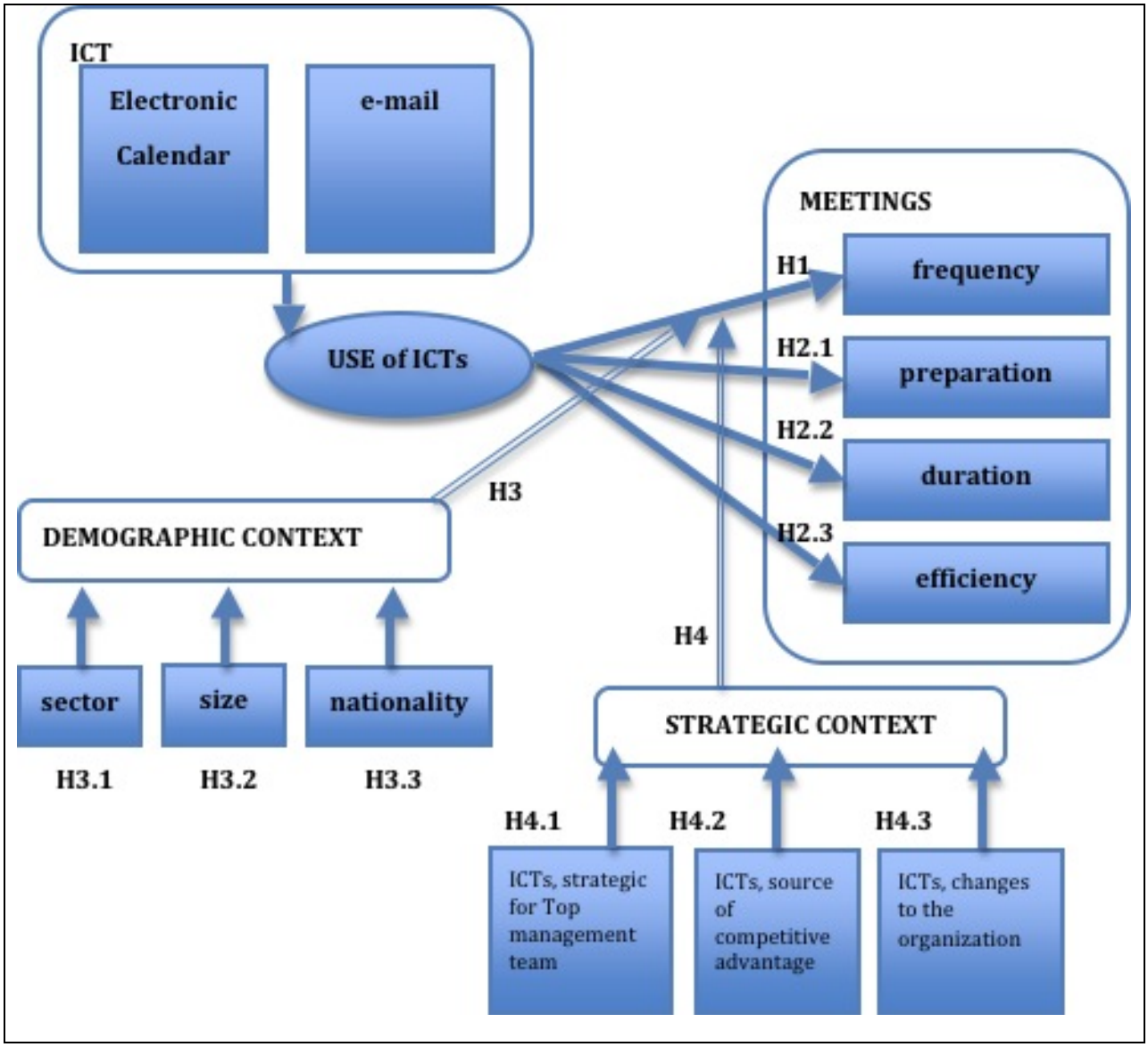

Figure 1. The Research Model

Hypotheses

In the wake of the literature review, the following hypotheses were drawn up:

H1. The development of electronic communication has led to a reduction in the number of face-to-face meetings.

H2. The development of electronic communication has improved the way face-to-face meetings are run.

H2.1 The development of electronic communication has improved the preparation of meetings.

H2.2 The development of electronic communication has reduced the length of meetings.

H2.3 The development of electronic communication has improved the efficiency of meetings.

H3. The substitution impact is influenced by the firm's demographic context.

H3.1 The substitution impact is influenced by the firm's activity sector.

H3.2 The substitution impact is influenced by the firm's size.

H3.3 The substitution impact is influenced by the firm's nationality of origin.

H4. The substitution impact is influenced by the firm's strategic context.

H4.1 The substitution impact is influenced by the top management team's concept of the strategic nature of ICTs.

H4.2 The substitution impact is influenced by the role of ICTs in terms of competitive advantage.

H4.3 The substitution impact is influenced by the reorganization that results from ICTs.

Methodology

The research data was gathered by phone from 2,500 companies between 2001 and 2005 by a specialized data collection agency.[1] Quotas covered the size of the firm and the breakdown by sector (see Table 1 and 2). The people questioned were company managers or managers from the main functional divisions. 500 people were questioned annually, although the companies and the people questioned were not the same.

The model variables were measured using items on a five-point scale.[2]

Three-quarters of the sample population was made up of SMEs, mainly in industry, services, and retail.

Table 1. Size of Firms

Payroll	50-500	500-5000	>5000
%	77.2%	14.4%	8.4%

Table 2. Business Sectors

Building/civil engineering	4.2%
Industry	43.9%
Commerce, retail	10.8%
Hospitality	1.5%
Transport	3.7%
Telecom, IT	5.3%
Financial sector	5.9%
BtoB services	11.6%
Services to general public	12.2%
Other	0.9%

IV. RESULTS:

We analysed the results with respect to the use of ICTs, the way meetings operated, the link between ICT use and the way meetings operated and, finally, between the way meetings operated and the demographic and strategic contexts. The data was studied in terms of evolution and bi-variable relations. We then conducted a causal analysis based on the LISREL model.

Use of ICTs

Two measurements were used to determine the use of ICTs: firstly, the shared diary and secondly, the use of e-mail to arrange meetings (see Table 3 and 4) . The criteria for the five-point scale are set out below in three categories.[3]

Those who answered "agree completely" are likely to be regular users of the shared diary system and represent around a quarter of the sample population. During the five -year observation period, we noted the growing use of the shared diary to arrange meetings. This led the percentage of "do not agree" answers to gradually fall from 69 percent to 54.5 percent.

[1] IPSOS, from 2002 to 2005.
[2] "totally disagree" to "agree completely".
[3] disagree entirely and don't agree /agree more or less/ agree and completely agree.

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Table 3. Meetings Are Mainly Arranged via Shared Diary (%[4])					
	2001	2002	2003	2004	2005
Do not agree	69%	65.2%	58,6%	58.9%	54.5%
Agree more or less	7.2%	13.6%	14 .8%	15.4%	17.9%
Agree completely	23.8%	21.2%	26.6%	25.7%	27.6%

Table 4. Meetings Are Mainly Arranged by E-Mail (%)					
	2001	2002	2003	2004	2005
Disagree	42.1%	36.7%	32.2%	29.2%	22.1%
Agree more or less	11.9%	23.3%	20.9%	19.2%	22.8%
Agree completely	46%	40%	46.9%	51.6%	55.1%

Over half the sample population (48 percent) arranges the dates of meetings using e-mail. The number of companies using e-mail to arrange meetings appeared to rise over the five -year period as the percentage of those who replied "do not agree" was 42.1 percent in 2001 and this fell to 22.1 percent by 2005.

These two trends indicate that the use of the two tools (shared diary and e-mail) to arrange meetings grew during the observation period.

Organization of Meetings

The running of meetings may be analysed according to four factors, namely the frequency of meetings, the degree of preparation, their duration, and their perceived effectiveness (see Table 5). The responses to the items in the table below were "agree" and "agree completely."

Table 5. The Running of Meetings (% agree)[5]					
Meetings are…	2001[6]	2002	2003	2004	2005
Less frequent		12.6%	12.9%	11.4%	12.3%
Better prepared		24.3%	32.7%	28.6%	35.1%
Shorter		13.9%	16.6%	16%	13.7%
More efficient		26.2%	30.1%	28.6%	29%

We can see that over the four-year observation period:

- The percentage of firms which stated that meetings were less frequent is extremely low, at around 12 percent on average. This percentage remained stable over the four -year observation period.
- On the other hand, between a quarter and a third of the sample population noted that the preparation for meetings had improved. This percentage appears to be rising steadily, up from 24.3 percent in 2002 to 35.1 percent in 2005.
- Only around 15% of the companies questioned reported that the duration of meetings had decreased, and there was no clear evolution over the four -year period.
- Improvements to the efficiency of meetings is noted by just over 25 percent of the sample population. Again, there is no clear evidence of evolution over the four -year period.

Use of ICTs and the organization of meetings[7]

Companies which use the shared diary system to arrange meetings have significantly higher scores with respect to reduction in the number of meetings and improvements in the way they are run (see Table 6).

Companies that use e-mail to arrange meetings also have significantly higher scores in terms of reduction in the number of meetings and improvements in the way they are run (see Table 7).

[4] % calculated in column of the annual 500 responses.
[5] Cumulated % of "agree" and "agree entirely". Items available from 2002 onwards.
[6] Question not included in 2001.
[7] In the tables that follow, we have calculated the average "agree" scores for each item concerning the way meetings operate.

Table 6. Use of the Shared Diary System and the Organization of Meetings				
Meetings Use of the shared diary system	Less frequent	Better prepared	More efficient	Shorter
Agree (including more or less)	2.42	3.15	3.15	2.7
Disagree	2.11	2.68	2.68	2.28
Student's T	5.96	8.77	8.85	8.44
P.	.000	.000	.000	.000

Table 7. Use of E-Mail and the Organization of Meetings				
Meetings Use of e-mail	Less frequent	Better prepared	More efficient	Shorter
Agree (including more or less)	2.35	3.04	3.02	2.58
Disagree	1.96	2.48	2.52	2.15
Student's T	6.99	9.68	8.94	7.93
P.	.000	.000	.000	.000

Demographic Context and the Organization of Meetings

Comparing scores by sector highlights two main differences: the Telecom and IT sector scores well above average and the service sector for private individuals scores far lower.[8]

Analyzing the way meetings operate according to the size of the organization shows that the largest companies in the sample (> 500) have significantly higher scores with respect to reduction in the number of meetings and improvements to the way meetings are run (see Table 8).

Table 8. Meetings Organization and Size of the Organizations				
Meetings Size	Less frequent	Better prepared	More efficient	Shorter
<500	2.20	2.83	2.84	2.41
>500	2.35	3.02	3	2.58
Student's T	2,436	3,047	2,65	2,809
P.	.015	.002	.008	.005

The analysis of the way meetings are run according to the nationality of the company indicates that, on average, French companies are less likely to reduce meetings than other Europeans, and that American organizations gained the highest scores on this point (see Table 9).

Table 9. Meetings Organization and Nationality of the Organization				
Meetings Nationality	Less frequent	Better prepared	More efficient	Shorter
French	2,19	2,87	2,89	2,41
European	2,40	2,97	2,97	2,56
American	2,46	2,95	3,10	2,63
Test F	3,005	.0677	1.248	2.023
P	.018	INS[9]	INS	INS

Table 10. Meetings Organization/ "Top Management Consider ICTs as Strategic "				
Meetings ICTs are strategic	Less frequent	Better prepared	More efficient	Shorter
Agree	2.08	2.6	2.62	2.3
Disagree	2.37	3.12	3.1	2.59
Student's T	5.541	9.789	9.217	5.706
P.	.000	.000	.000	.000

[8] Cf appendix 1.
[9] INS: insignificant differences.

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Strategic Context and the Way Meetings Are Run

Companies in which the top management team appears to consider ICTs as strategic have higher scores with respect to reduction in the number of meetings and improvements in the way they are run (see table 10).

The same applies to firms where ICTs are considered to have generated profound organizational changes, which is coherent with the idea that calling into question existing meetings represents a form of reorganization (see Table 11).

Table 11. Meetings Organization/ "ICTs Result in Profound Organizational Changes "

Meetings Changes to the organization	Less frequent	Better prepared	More efficient	Shorter
Agree	2.17	2.71	2.73	2.35
Disagree	2.33	3.14	3.11	2.61
Student's T	2.984	7.935	7.164	5.028
P.	.000	.000	.000	.000

Lastly, companies where ICTs are regarded as a source of competitive advantage also have higher than average scores (see Table 12).

Table 12. Meetings organization/ " ICTs Represent a Competitive Advantage "

Meetings ICTs, competitive advantage	Less frequent	Better prepared	More efficient	Shorter
Agree	2.08	2.64	2.65	2.26
Disagree	2.37	3.08	3.06	2 .63
Student's T	5.478	8.289	7.93	7.302
P.	.000	.000	.000	.000

The results of our research are summarized in table 13.

Table 13. Summary of Results

Hypotheses	Results
H1. The development of electronic communication led to a reduction in the number of face-to-face meetings.	Less than 15% of the respondents mention a reduction in the number of meetings. The Napoleon effect is generally confirmed.
***H2**. The development of electronic communication improves the way face-to-face meetings are run.*	
H2.1 The development of electronic communication improves the preparation of meetings.	Validated for about a third of the companies in the sample.
H2.2 The development of electronic communication reduces the duration of meetings.	Not validated.
H2.3 The development of electronic communication improves the perceived efficiency of meetings.	Validated for around a quarter of the companies in the sample.
***H3.** The substitution impact is influenced by the demographic context of the company.*	
H3.1 The substitution impact is influenced by the company sector.	Validated, especially for the telecom and IT sector where the Napoleon effect is less pronounced.
H3.2 The substitution impact is influenced by the size of the company	Validated, especially for large companies (>500) where the Napoleon effect is less marked.
H3.3 The substitution impact is influenced by the company's nationality of origin.	Validated, especially for companies of American origin where the Napoleon effect is less marked.
H4. The substitution impact is influenced by the strategic context of the company.	
H4.1 The substitution impact is influenced by the Top management's vision of the strategic nature of ICTs.	Validated, the Napoleon effect is reduced when the Top management team considers ICTs as strategic.
H4.2 The substitution impact is influenced by the role of ICTs in terms of competitive advantage.	Validated, the Napoleon effect is reduced when ICTs are considered as a source of competitive advantage.
H4.3 The substitution impact is influenced by ICTs-induced reorganization.	Validated, the Napoleon effect is reduced when ICTs lead to reorganization.

The Global Model

We tested the simultaneous relations between the different groups of variables using a structural equations model which included the context of ICT use both in demographic and strategic terms, the degree of ICT use, the frequency of meetings and the way they are run. Only variables corresponding to scale-measured variables were included.

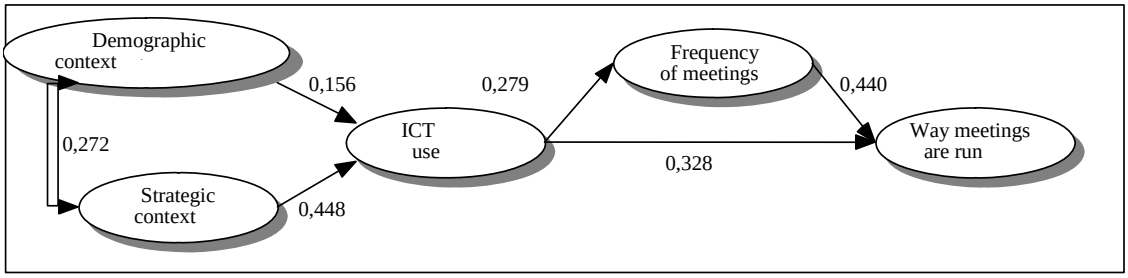

Figure 2. The Global Model of the Napoleon Effect

The model gave satisfactory results when tested using structural equations, and this backed up the results obtained using the t-test.[10] It should be noted that:

The strategic context and, to a lesser degree, the demographic context, positively influence the degree of ICT use.

The use of ICTs positively influences a reduction in the number of meetings, which means that the greater the use of ICTs, the less we observe the Napoleon effect.

The use of ICTs and, above all, the reduction in the number of meetings positively influences improvements in the way meetings are run.

It appears that the demographic and strategic context determines the use of ICTs and this in turn influences both the frequency of the meetings and the way they are run.

V. DISCUSSION

The results concerning the growing use of ICT tools and the way meetings are run need to be considered in the light of the sample population and the profile of the respondents. This leads us to the following conclusions:

- The frequency and duration of meetings are only scaled down in a small percentage of the companies concerned (< 15 percent).
- Improvements to the way meetings are run in terms of preparation and efficiency are observed in just over a quarter of the companies in the sample population.
- The expected substitution impact of e-mail over face-to-face was not confirmed in the majority of the firms interviewed.
- The improvements to efficiency may be linked to improved preparation for meetings: i.e. e-transmission of documents prior to meetings was observed in some firms.
- The substitution impact, resulting in fewer meetings, is influenced by both demographic and strategic factors.

How can the absence of a link between the growing use of ICTs and the number of face-to-face meetings in the large majority of the companies be explained. The results consolidate the notion of a layering of existing media in firms. The introduction of e-mail into the portfolio of managerial communication tools did not result in the reorganisation of tools, but simply led to an increase in the number of communication channels available. A number of hypotheses may be formulated to explain these results.

The Spiral Effect

The development of electronic communication may not lead to a reduction in face-to-face meetings, but may lead instead to their increase. At times, electronic communication can be a source of ambiguity, incomprehension and

[10] The adjustment indexes for the model are set out in appendix 2.

conflict ([Boukef Charki 2007]. Such problems require face-to-face meetings to resolve them. McKeen and Smith [2004] consider that one of the problems caused by e-mail is poorer communication and problems linked to the interpretation of the messages exchanged. This medium is ill-adapted to ambiguous situations and consequently generates a need for meetings. The Napoleon effect thus results from the 'vicious circle' arising from the media use.

The " Efficiency " Effect

We cannot necesarily compare electronic and face-to-face communication on a level playing field because during the observation period, a company may have been growing its activity and the number of meetings may consequently correspond to its increased activity. This could also explain the improved efficiency of meetings reported in 25 percent of cases. In addition, Van den Hooff [2005] points out that with experience, users become more competent in the use of e-mail. This enables them to use it more effectively and for a wider range of activities. The Napoleon effect is therefore observed with respect to fluctuating activity.

The " Bureaucratic " Effect

In some cases, meetings are formally defined by internal procedures and thus correspond to formal routines [Dosi et al. 2000]. Although meetings should always be justified, it is often difficult to question their raison d'être. The bureaucratic effect is a source of inertia and explains the permanent nature of many meetings that most participants consider to be unnecessary. Organizational routines are one of the obstacles to face-to-face/distance substitution. The Napoleon effect arises as a result of bureaucratic routines.

The " Communication Norms " Effect

The social influence theory [Fulk et al. 1990] highlights the role of social norms to explain the choice of different forms of communication. The use of various media effectively depends on in-house communication norms and practices [Boukef Charki and Kalika 2006; Watson Manheim, and Bélanger 2007].

Thus, face-to-face meetings may be associated with a " participative " or " democratic " management. We can therefore conclude that the differences observed between companies are related to their communication practices and norms as well as their ability to change them. These communication norms also include the cultural influences that structure managers' concepts of the role of time and the function of meetings. Differences observed related to the companies' nationalities provide a good illustration of this notion. The Napoleon effect thus differs according to the corporate culture.

The " Players Strategy " Effect

In an organization, the decisions, particularly with respect to change, are linked to the players' own strategies [Crozier and Friedberg 1977]. Meetings can have a specific role in this respect. Calling a meeting or taking part in one (or not) can be seen as a demonstration of power. The possible suspension of meetings, rendered partially pointless because of electronic communication, is therefore likely to be countered by the strategies of the players involved. In addition, people who have to travel far to meetings may not want them to be axed for fear of losing their travel expenses and other advantages. Meetings thus play a key role in power games and therefore promote the Napoleon effect.

The " Representation of Work " Effect

Work in business organizations has long been associated with a dominant face-to-face model: work is carried out in the company and the face-to-face meeting is an example of this type of activity. This traditional concept of the company, which is called into question today by virtual and Web-based firms, partially explains the difficulties of developing distance or home-based working practices [Alter 2003]. The substitution of distance coordination with face-to-face coordination can only be made if there are changes to the social representations with respect to distance working.

The " Social Needs " Effect

Electronic communication tends to counter the development of co-presence situations. Sarbaugh-Thompson and Feldman [1998] effectively show that electronic communication can reduce opportunities for interaction and informal encounters within organizations. Empirical studies have shown that electronic communication requires more time than face-to-face to reach the same relational level [Chidambaram 1993; Chidambaram and Jones 1996]. With this in mind, meetings may at times be preferred to electronic communication. They provide an opportunity to work together and also to build and create relational ties. The layering of media and thus the Napoleon effect also result from social needs.

The " Involvement of the Management " Effect

Managerial involvement in changes and new projects has always been regarded as a key factor. The role of management in the use of ICTs has been demonstrated in several empirical studies [Karahanna and Limayem 2001; Boukef Charki 2006]. The management's involvement in the promotion and use of ICTs can thus play a determining role in the choice of media. Indeed, disparities can be observed between companies as to the extent of layering depending on whether the hierarchy encourages face-to-face or distance communication and coordination tools. With respect to calling into question existing meetings and face-to-face/distance substitution, we believe that the value of example in the behavior of the management team is a key factor. Managerial behavior will be influenced by practices in the sector, and also by pressure from the competition, performance demands and the presumed role of ICTs in the company's competitive advantages.

Our study confirms that the substitution impact is not validated and that the Napoleon effect, i.e. the layering or juxtaposition of the various media is present in many firms. This superposition of tools arises from the aspects mentioned above. The explanations are not only contingent, but are also linked to experience and social influences, and the emerging properties of media forms.

While the list is no doubt far from complete, we can identify three categories of Napoleon effects from above-mentioned aspects. The first, which combines the effects of the social spiral, bureaucracy, norms, strategy of the players, work representations and social needs, tends to accentuate stacking and to increase the Napoleon effect. This in turn gives rise to the question of how many layers can be taken on board and the limits of the phenomenon. The second category concerns efficiency associated with an improvement in the way meetings are run. The Napoleon effect that we posit may lead to a change in the nature of the meetings. In other words, the Napoleon effect not only concerns the misuse of available tools but may also be responsible for changing working methods. The third category encompasses the management effect, which we believe is likely to reduce the Napoleon effect. These differences show that the Napoleon effect can impact on efficiency and performance in a range of ways, and these need to be explored in subsequent studies.

VI. CONCLUSION

Our results show that, in the majority of cases, the development of a communication tool in business management does not lead to the reorganization of communication and coordination management processes, in fact far from it. Instead, we observe a layering of different media. Each new medium is superimposed over the existing ones. This layering is called the Napoleon effect. This Napoleon effect reflects the fact that existing media are juxtaposed on top of one another, resulting in an accumulation of successive layers rather than well-thought through reorganization. Future research is required to identify the profile of companies that apply the presumed substitution and the impact on the performance of the Napoleon effect.

At a conceptual level, the Napoleon effect perspective encompasses a number of original aspects. First, it contributes to the development of the issue by introducing not just the question of choice of media, but that of the choice of media portfolio. Second, it places the issue of ICT use in a historical context which takes into account organizational factors of accumulation and training, highlighting the fact that not only different companies, but also different departments in a same organization use technology in different ways.

From the managerial point of view, the results of this study seem to point to a need to encourage business organizations to reflect on the communication tools portfolio available to managers and their rationalization, as the stacking of media tools may lead to contradictory outcomes in terms of productivity. The widespread vagueness in certain companies with respect to the use of communication channels is often a source of stress and wasted time for managers. The Napoleon effect appears to result in a growing information overload which generates individual and collective dysfunctions.

ACKNOWLEDGMENTS

The three authors are members of CREPA, Centre de Recherche en management et Organisation of Paris-Dauphine University. The authors would like to thank Dr. Eric Campoy for his invaluable help in the section introducing the structural equations model. The authors would also like to thank all the anonymous readers who helped to improve the initial paper through their invaluable comments and suggestions, as well as their colleagues from the CREPA.

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APPENDIX 1: SECTORS AND FUNCTIONS OF MEETINGS

Sector	less frequent	better prepared	more efficient	shorter
Buildings, Civil Engineering	2,11	2,97	2,89	2,37
Industry	2,24	2,82	2,87	2,51
Retail, distribution	2,32	2,89	2,90	2,41
Hospitality industry	2,19	2,77	2,84	2,32
Transport	2,16	3,03	2,87	2,34
Telecommunications and IT services	2,70	3,06	3,08	2,77
Finance and real estate	2,12	2,91	2,90	2,28
B to B services	2,36	3,09	3,04	2,52
Services to the public	1,99	2,68	2,65	2,25
Other	2,00	2,63	2,68	2,32
	F=4,150 P<,000	F=2,465 P<,000	F=2,223 P<,018	F=2,901 P<,002

APPENDIX 2: ADJUSTMENT INDEXES OF THE STRUCTURAL EQUATIONS MODEL

Adjustment indexes	Threshold
χ_0^2 : 6926 (120 ddl)	-
χ_1^2 : 446 (97 ddl)	-
NFI : 0.936	> 0.9
NNFI : 0.936	> 0.9
CFI : 0.949	> 0.9 (or > 0.95)
RMSEA : 0.043 [0.039-0.047]	< 0.08 (or < 0.05)
GFI : 0.969	> 0.9
AGFI : 0.956	> 0.9
AIC_0 :6686	-
AIC_1 : 254	-
$CAIC_0$: 5894	-
$CAIC_1$: -380	-

APPENDIX 3: PROFILE OF FIRMS INCLUDED

The firm belongs to a group: Yes: 65%; No: 35%

The parent firm is:	
French	61%
European	24.7%
American	11.9%
Asian	2.2%
Other	0.2

The firm is located on:	
A site in France	36.6%
Several sites in Europe	32.2%
Several continents	21.4%
Not specified	9.8%

ABOUT THE AUTHORS

Michel Kalika, Ph.D., is Dean of L'Ecole de Management de Strasbourg, Université Robert Schuman. He was previously full professor at Université Paris-Dauphine. He was director of the Center for Research in Management & Organization (CREPA, DRM UMR CNRS 7088). He was also the director of the Ph.D. program in Information Systems (e-management). He was director of the Executive MBA. He created a research observatory about the impact of IT on management (Dauphine-Cegos E-Management Observatory) in which data are collected both from hundreds of managers and thousands of employees each year. His research focus is the use of e-mail by managers and the impact on meetings, the " millefeuille " theory, IT strategic alignment, the link between IT and performance. His teaching focus is strategic management. He published 18 books on organizational structure, management, e-management, three cases (L'Oréal, Renault-Nissan alliance, Airbus-Boeing) and numerous articles in academic journals. michel.kalika@em-strasbourg.eu .

Nabila Boukef Charki, Ph.D., is an associate professor in Management Information Systems at ESDES Business School, Catholic university of Lyon. She is also associate researcher at the Center for research in Management & Organization (CREPA, DRM UMR CNRS 7088), Paris Dauphine University. Her current research is focused on media use and their organizational impact.

Henri Isaac is associate professor at Université Paris-Dauphine, France. He has written numerous articles and book chapters in IS academic journals. His work focuses on ubiquitous computing and nomadic environment. He is currently working on the adoption issues in next generation mobile technologies. henri.isaac@dauphine.fr

Communications of the Association for Information Systems

ISSN: 1529-3181

Communications of the Association for Information Systems